

## Chapter 1: Why Preserve Coast Defenses?

The Golden Gate National Recreation Area is challenged to protect, preserve, and interpret a grouping of more than fifty coast defense fortifications, ranging in age from fifty-five years to more than a century, inclusive of the remaining earth-and-brick batteries of the early 1870s, to the experimental and sophisticated reinforced concrete structures of the Endicott period through World War II (Maps 1-4). Augmenting the oversized scale of the primary gun emplacements that define the batteries, themselves sometimes eight in number at a mortar site, are approximately 160 ancillary structures and associated features of the coast defense cultural landscape. Ancillaries include casemates that served as the explosive operating units for mines placed under bay waters; fire control stations for modernizing the command required with the expanded range and accuracy of modern guns; and, searchlights at multiple points of land jutting out along the coastline both north and south of the harbor entrance. Mine casemates and fire control stations, the latter also known as base-end stations, first appeared during the 1890s, while systematic searchlights followed after the turn of the century. Extending coast defense through World War II and into the Cold War decades of the 1950s and 1960s are radar stations and Nike anti-aircraft batteries, with Nike emplacements found from the northernmost edges of today's park to the far south (Maps 5-7).

### *Significance*

The seacoast fortifications of San Francisco Bay are significant as well-preserved examples of nearly every important development in military fortification engineering from before the Civil War to the guided missile era; as tangible manifestations of changing periods of the nation's history and of its changing military responses; and as associative links with people important to the history of the nation as a whole from John C. Fremont and "Kit" Carson to Irvin McDowell and Douglas MacArthur. The military reservations that provide a relatively unchanged physical context for these fortifications also provide a spectacular backdrop of largely undeveloped open space at the very verge of a great urban metropolis. This open space is not only a defining factor in the San Francisco Bay Region's world-renowned scenic beauty, but has become the core of land around which is established the first of the nation's urban national park areas.

Public Law 92-589, the enabling legislation which created the Golden Gate National Recreation Area in 1972, stated that the new park's purpose was, "to preserve for public use and enjoyment certain areas on Marin and San Francisco Counties, California, possessing outstanding natural, historic, scenic, and recreational values..."<sup>1</sup> This national park is one of the 375 units (at the time of this writing) of a world-renowned system of natural reserves, scenic areas, and historic sites whose overall mission is to "preserve unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations."<sup>2</sup>

The *Golden Gate National Recreation Area/Point Reyes National Seashore General Management Plan* (1980) placed all the fortifications within a preservation zone, where the historic resources are "to be managed and used primarily for the purpose of facilitating public enjoyment, understanding, and appreciation of their historic values" and for "protection of structures from influences and uses that could cause deterioration."<sup>3</sup>

In carrying out its mission of historic preservation, the National Park Service adheres to the provisions of the National Historic Preservation Act of 1966, as amended. This act requires the heads of all federal agencies to establish a preservation program that identifies, evaluates, protects and nominates historic properties to the National Register of Historic Places. The Act stipulates that such historic properties "are managed and maintained in a way that considers the preservation of their historic, archeological, architectural, and cultural values ...and gives special consideration to the preservation of such values in the case of properties designated as having National significance."<sup>4</sup>

In accordance with the above laws, regulations and policies, the seacoast fortifications within Golden Gate National Recreation Area have been determined eligible for, or placed upon, the National Register of Historic Places as: the Fort Mason Historic District; the 6-Inch Disappearing Rifle; the Fort Miley Military Reservation; the Fort Baker, Barry and Cronkhite Historic District; Fort Funston; and the Hill 640 Military Reservation. In addition, the following coast defense properties have been designated National Historic Landmarks because of their national significance: the Presidio of San Francisco; Fort Point; and Alcatraz Island. The entire seacoast fortification network at Golden Gate National Recreation Area is presently in the process of being nominated as a National Historic Landmark, and is being managed as such until an official determination is made.

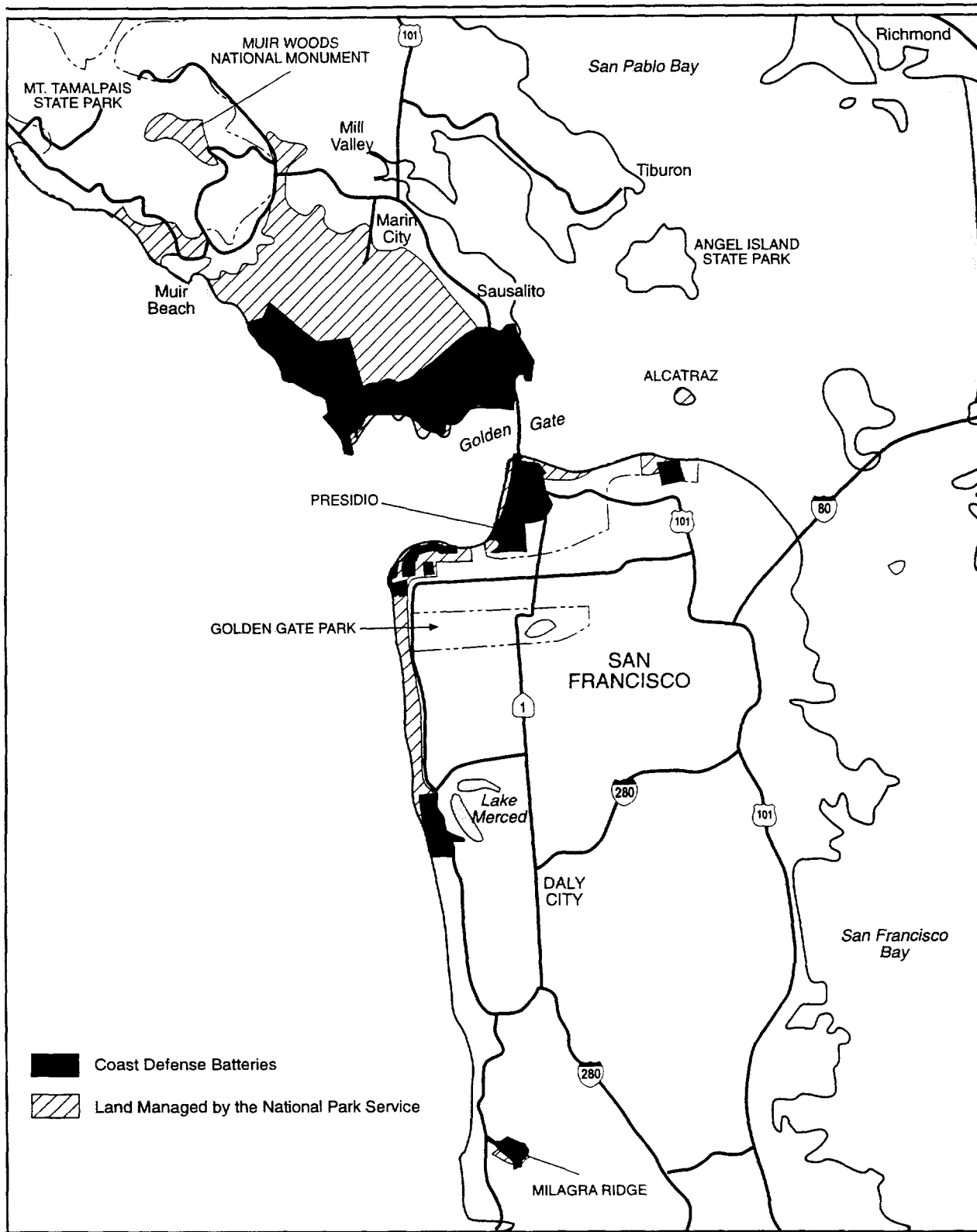
Therefore, within the framework of the mission of the National Park Service; the legislated purpose of the Golden Gate National Recreation Area; and established legislation and approved park policy; the answer to the question "Why preserve coast defenses?" is clear: "It is policy, firmly based upon law."

### *Reasons to Preserve*



Plate 1. Battery Godfrey, Fort Winfield Scott, constructed 1892-1896. Looking northwest at loading platform.

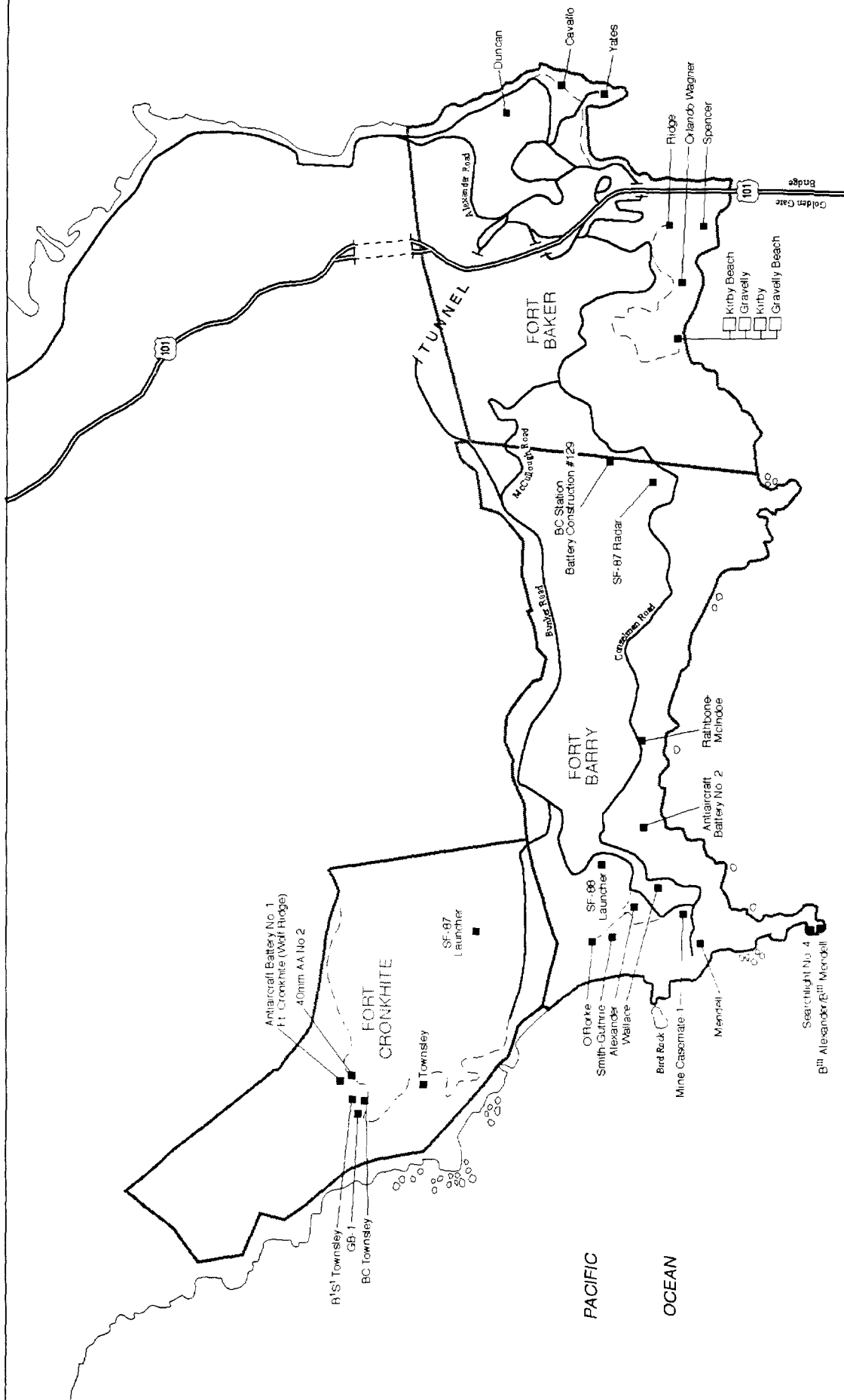
Today walkers, hikers, and joggers are confronted with many images as they explore trails within the park. A single view can yield a close look at a stolid defense site of the 1890s, such as that of Battery Godfrey, and simultaneously include one of the elegant Moderne towers of the Golden Gate Bridge of the late 1930s—the pair of historic resources framed by the mature landscaping evocative of the complexities of the immediate setting of the Presidio. The man-made beauty inherent in the sculptural forms of many gun pits, such as at Battery Kirby at Fort Baker, offer any park visitor a heightened moment of pause when, after climbing up steep battery steps to the blast apron, he turns back to be rewarded with the sweeping precision of a crisp circular form not quite anticipated (Plates 1 and 2).



0 1 2 3 4 5 Kilometers  
0 1 2 3 Miles



Map 1  
**Coast Defense Locations, General  
Golden Gate National Recreation Area**

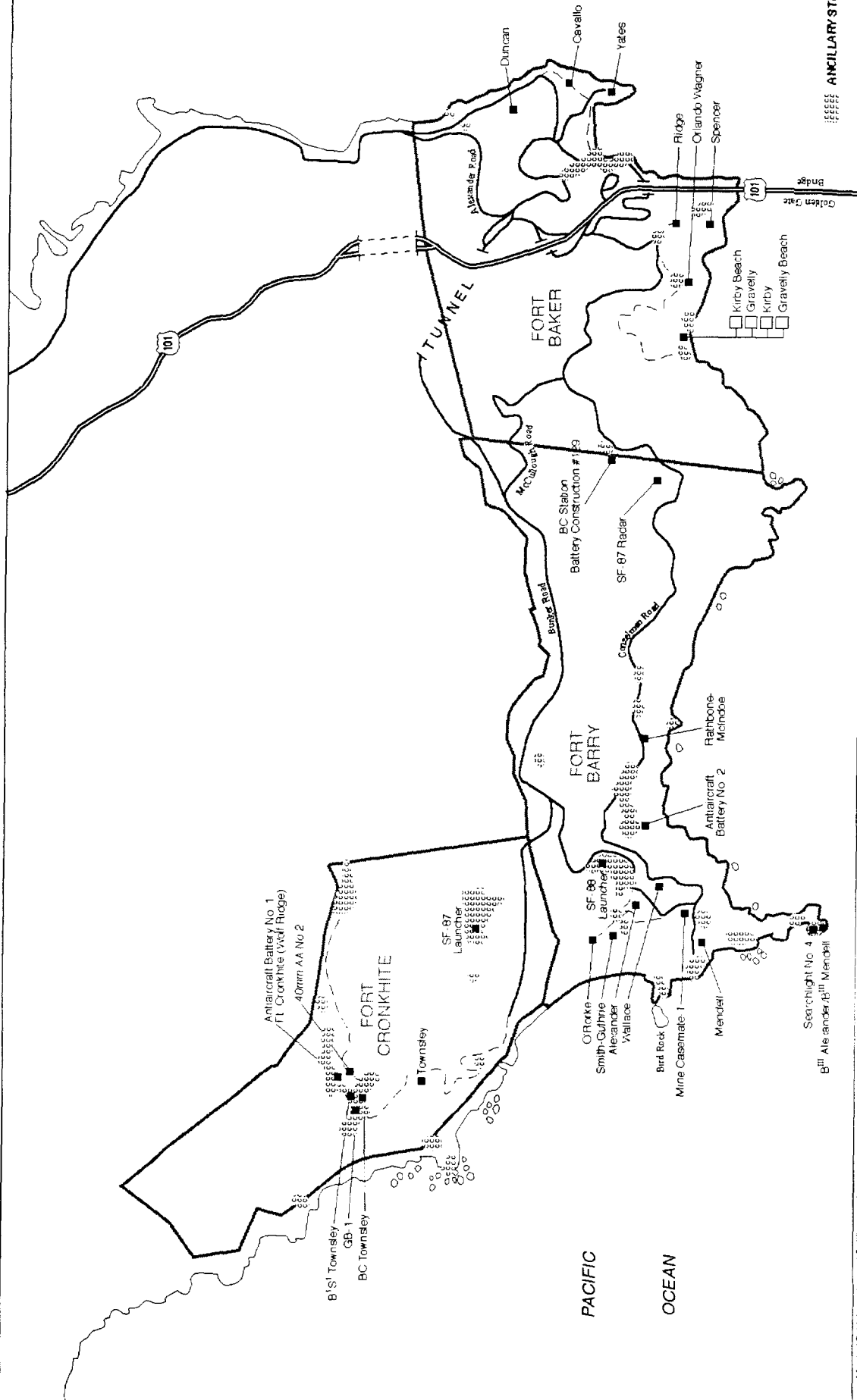


1:50,000 1966 by the U.S. National Park Service, U.S. Department of the Interior



Not to Scale

Map 2  
Coast Defense Batteries, North  
Fort Baker, Fort Barry, and Fort Cronkhite  
Golden Gate National Recreation Area



ANCILLARY STRUCTURES/NIKE SITES

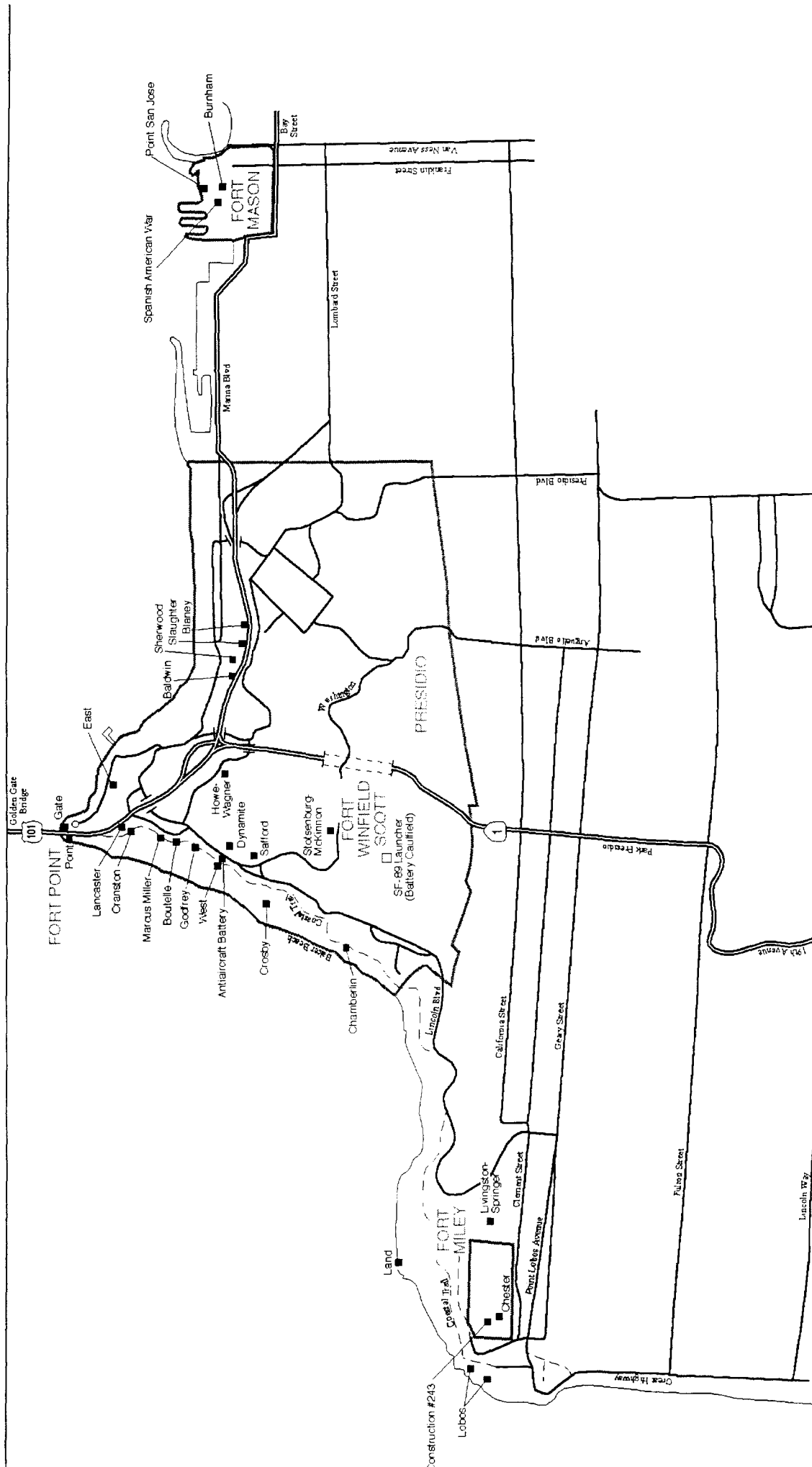
Map 3  
Coast Defense Batteries, North  
With general locations of ancillary structures and Nike sites  
Golden Gate National Recreation Area

Map and Guide to the San Francisco Peninsula of the Golden Gate  
1986 by the Golden Gate National Parks Association

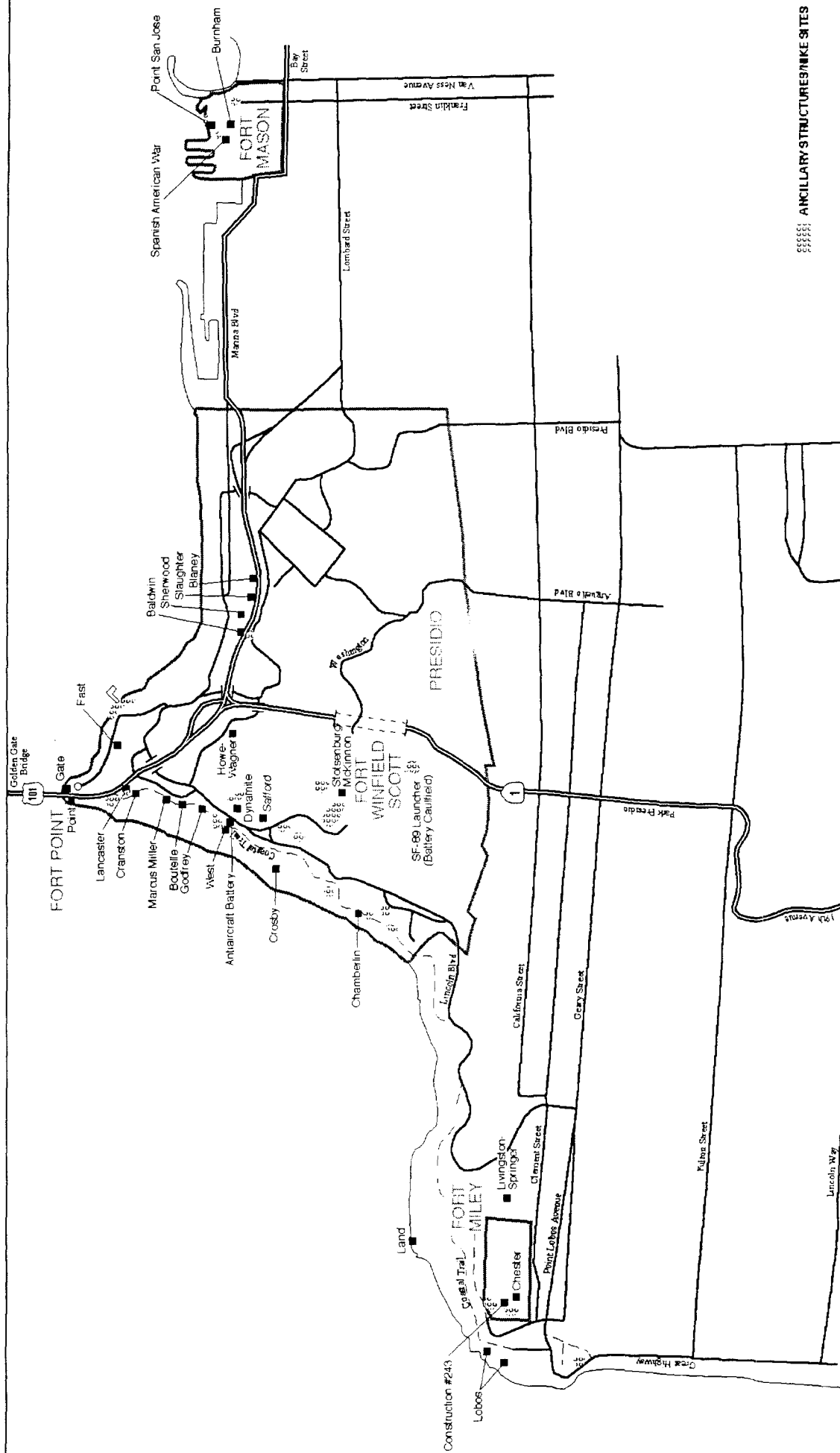


Not to Scale





Map 4  
 Coast Defense Batteries, South  
 Fort Mason, Fort Point, Fort Winfield Scott, and Fort Miley  
 Golden Gate National Recreation Area



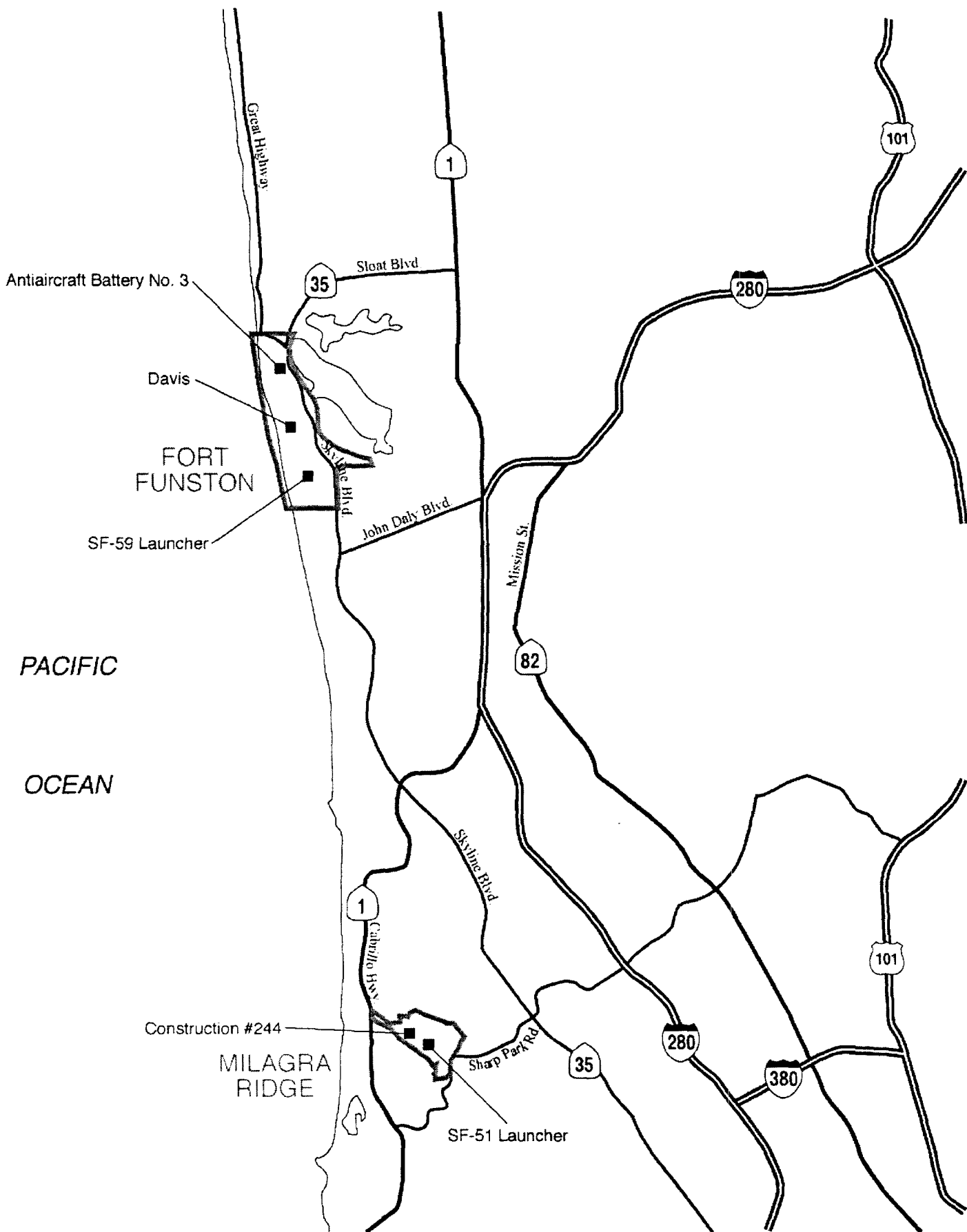
ANCILLARY STRUCTURES/NIKE SITES

Map 5  
Coast Defense Batteries, South  
With general locations of ancillary structures and Nike sites  
Golden Gate National Recreation Area

Map 5: Coast Defense Batteries, South  
1962 by the Golden Gate National Parks Association



Not to Scale



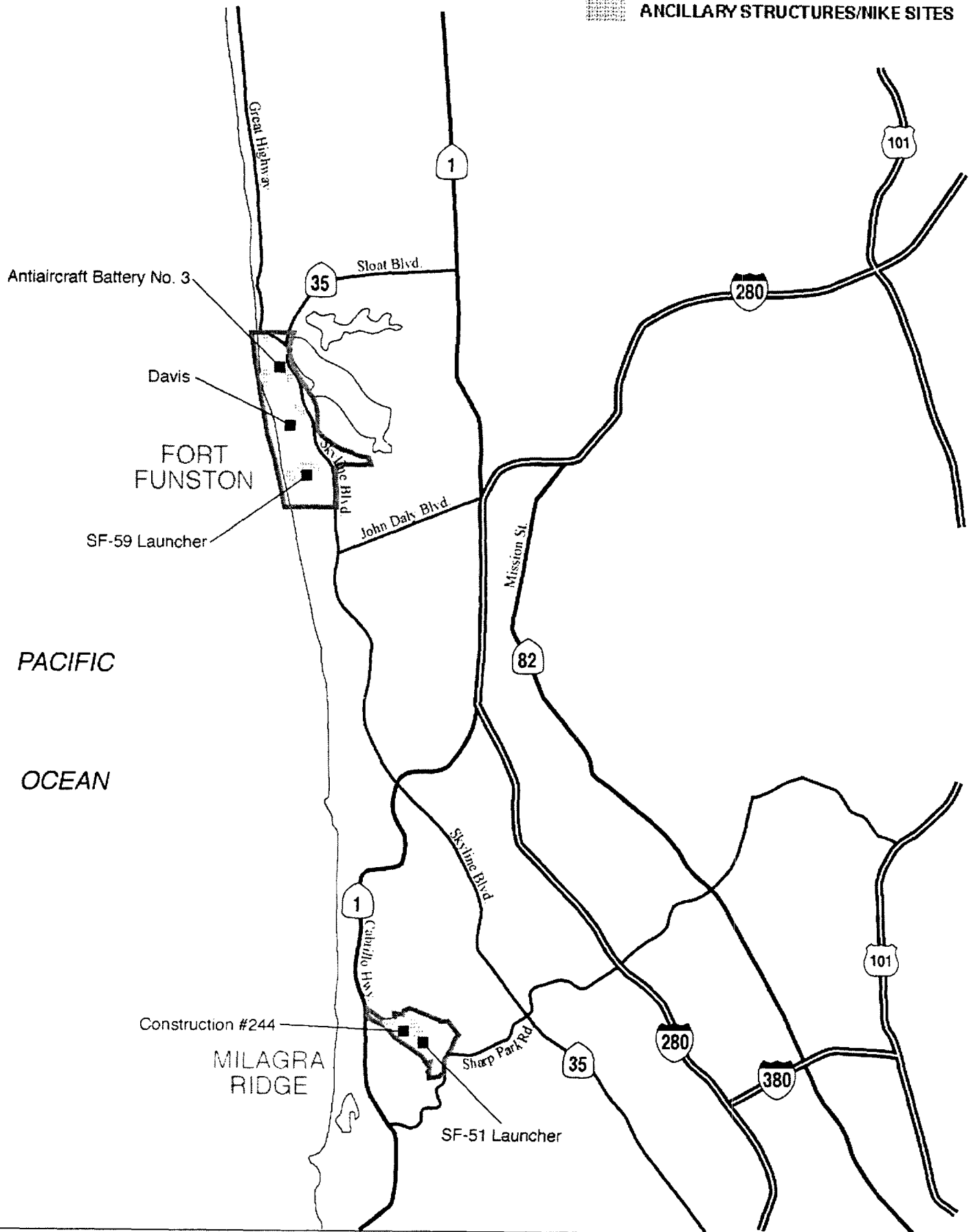
Source: Northern California Atlas & Gazetteer, 1995 DeLorme Mapping



Not to Scale



Map 6  
Coast Defense Batteries, Far South  
Fort Funston and Milagra Ridge  
Golden Gate National Recreation Area



Source: Northern California Atlas & Gazetteer, 1995 DeLorme Mapping

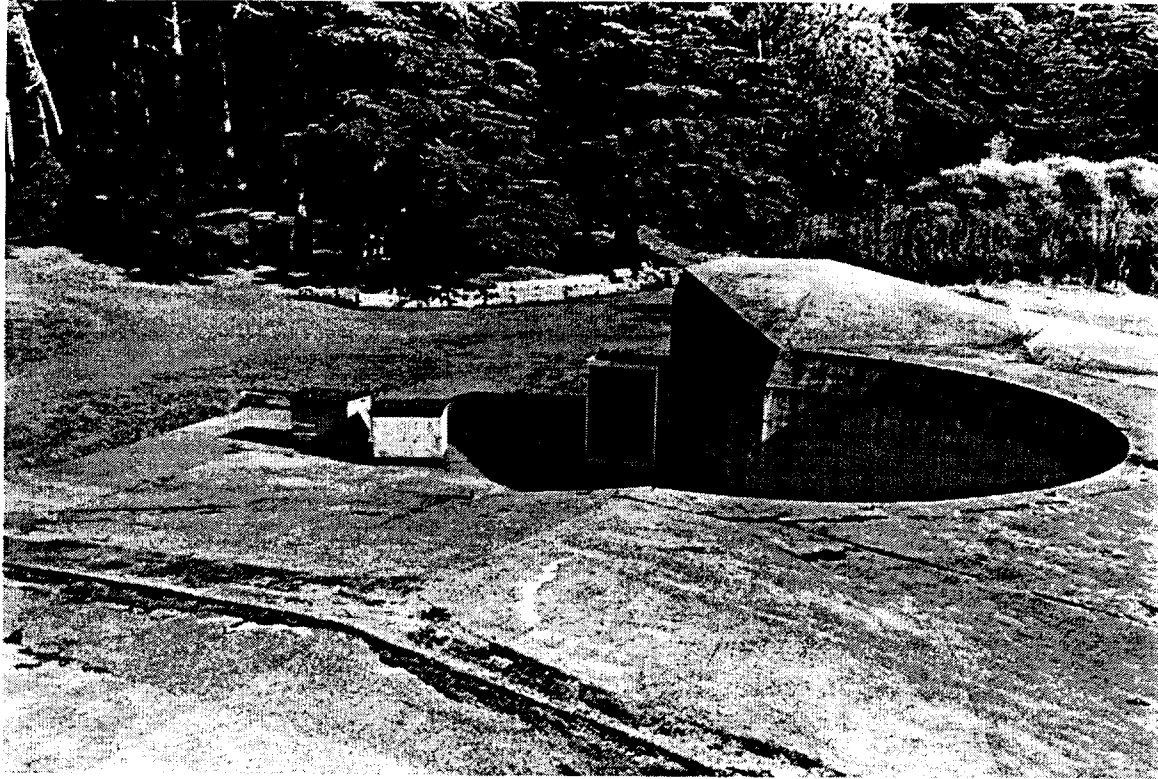
Map 7



Not to Scale



**Coast Defense Batteries, Far South**  
**With general locations of ancillary structures and Nike sites**  
**Golden Gate National Recreation Area**



**Plate 2. Battery Kirby, Fort Baker, constructed 1899-1900. Looking into emplacement from battery crest.**

Explorations in the immediate proximity of a battery can yield not just a better understanding of the primary structure, but also of its important ancillaries. For World War II Battery Construction #129 within Fort Baker, a battery commander's station gives a clear sense of the role of the observation post, half-buried, with its viewshed framed by a bunker-like horizontal, panoramic opening. And when one comes upon Battery Wallace, one is stopped, as one is always stopped, by the graphic announcement of a formal name and date of construction: *Battery Wallace 1942*. As is often true when we confront the painted signage and imagery added to the equipment of war, from aircraft to the command blockhouses controlling missiles, we are pulled back into the past through specificity (Plates 3 and 4). We preserve coast defenses, then, so that we may allow future generations to see and touch the past.

As history moves forward, these many and diverse defense resources remain what they were designed and engineered to be: an intimate part of the land forms on which they are both imbedded and perched. The Army built the coast defense fortifications bracketing the San Francisco Bay, from batteries to ancillaries, with deliberate care in their texturing and coloration, achieved through planted foliage, coated blast aprons, and structural paint schemes. When addressing the larger cultural landscape of coast defense within the Golden Gate National Recreation Area, one is asked to reflect on the original beaches and man-made cuts and fills; the contours of the hills, deliberately altered by emplacements to re-achieve the appearance of a natural vista from the vantage of hostile approaching ships; the roles of native and introduced plantings—from grasses, iceplant, and eucalyptus in the Endicott years to exotic kudzu by the late 1930s; the roadways, paths, and parade areas both at and between the installations; and, the line-of-sight viewsheds from the batteries themselves, engineered seawards. The setting for San Francisco's coast defenses is made even more complex by the long and prominent history of the Presidio, Fort Baker and other posts, each accented through a formal built environment and landscaped grounds.



Plate 3. BC Station, Battery Construction #129, Fort Barry, constructed 1942-1944. Looking east.



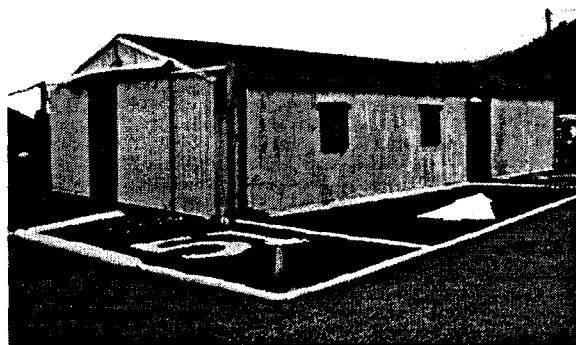
Plate 4. Battery Wallace, Fort Barry, constructed 1917-1921. With casemating of its two guns in 1942-1943. Emplacement entry.

Interpretation of such a resource demands repeated looks at the many included sites within the coast defense system of fortifications, coupled with renewed archival siftings through Army reports; through letters between military engineers, as well as between commanders; and through drawings, plans, and historic photographs. We preserve coast defenses, too, so that tomorrow's historians may apply knowledge and interpretations to physical fabric in its more encompassing context, rather than applying what they discover only to changed land forms and mere records of what is no longer there to be seen.



**Plate 5. Power plant at Battery Dynamite, Fort Winfield Scott, constructed 1894-1895, with major additions and remodeling, 1899-1900.**

**Plate 6. Butler Manufacturing Co., Missile Assembly Building, Nike Site SF-88L, Fort Barry, erected 1962. Courtesy of the Park Archives of the Golden Gate National Recreation Area.**



The larger cultural landscape of coast defenses within the Golden Gate National Recreation Area offers structures that contrast widely with each other, from the formal Beaux-Arts classicism found in the mid-1890s power plant built to accompany Battery Dynamite, to the simple corrugated, metal-frame Butler building used to house the missile assembly for Nike during the early 1960s. The power plant was exemplary of the high stylistic trends of its time, while the Nike structure harkened straight back to World War II and the opening of the Cold War, with little change (Plates 5 and 6).

## *Links Between the Coast Defenses of San Francisco and the Northwest*

In undertaking a maintenance manual for the coast defense fortifications of the Golden Gate National Recreation Area, the National Park Service at the Presidio, San Francisco, follows in the footsteps of the Washington State Parks and Recreation Commission, for the planned management of its coast defense installations, and, the National Park Service through the National Maritime Initiative, for the similarly thoughtful management of its coastal lighthouses. In the Northwest, military historian David Hansen authored the *Coast Defense Resources Management Plan* for Washington State Parks (1989), following this effort with the context statement titled *Never Finished: The National Coast Defense Program in Washington State* (1997). At the national level, the *Historic Lighthouse Preservation Handbook* (1998) is recently accessible not only in printed format, but also on a National Park Service website. For the coast defenses of the San Francisco Bay, discussed herein, the National Park Service is challenged by an even greater breadth of resources, in type and time period, than in either the Washington management document or the lighthouse handbook.

In particular, the Golden Gate National Recreation Area hopes to continue discussions and research put forth for the Washington coast defense fortifications, encouraging further detailed scholarship focused on engineering history for the Pacific. In 1886 Secretary of War William C. Endicott had convened a board to develop modern coast fortifications effective against the evolving sophistication of naval weapons. Endicott's name later became associated with those coast defenses built during the 1890s and into the first years of the twentieth century. Commonly referenced as the Endicott period, this fifteen-year span was of key importance in the design and engineering experimentation for fortifications along America's seaboards. Yet in the middle 1880s, the West Coast was so sparsely settled and militarily remote, that the Endicott Board had recommended augmentation at only three Pacific harbors among the twenty-seven reviewed nationwide: San Francisco, the Columbia River between Oregon and Washington, and, San Diego. In the Northwest, the Columbia River location ranked eighteenth in urgency for construction, with batteries begun at Fort Stevens, Oregon, in 1896; and, at Chinook Point and Fort Canby, Washington, in 1897 and 1899. The U.S. Army Corps of Engineers added Puget Sound to the national program in 1894, with construction first undertaken at Fort Worden beginning in 1896. Hence, erection of coast defenses in the Northwest was a phenomenon of the turn of the twentieth century. Subsumed under the jurisdiction of San Francisco, the Columbia River and Puget Sound fortifications were perfectly timed and orchestrated to draw directly upon the work that occurred first at the Golden Gate, between 1891 and 1898.

The U.S. Army Corps of Engineers had initiated construction of the Northwest coast defenses under the leadership of Captain Walter L. Fisk. An engineer on his staff, Harry Taylor, actively involved himself in solving some of the design problems that arose in this period. In early 1898 Taylor sent his assistant, M.L. Walker, to study and review the coast defense fortifications then just-finished and under construction in San Francisco. Although unnamed by the War Department until 1902, these batteries included the Fort Winfield Scott installations Marcus Miller (built between 1891 and 1898), Godfrey (1892-1896), Howe-Wagner (1893-1895), Boutelle (begun 1898), Dynamite (1894-1895), Saffold (1896-1897), Cranston (1897-1898), Stotsenburg-McKinnon (1897-1898), and Lancaster (begun 1898) on the south side of the bay, and, the Fort Baker batteries Spencer (1893-1897) and Duncan (begun 1898) on the north. The Endicott Board recommendations of 1886 had ranked San Francisco second in needed new construction, and several of the first Endicott batteries built bracketing the bay were characterized by their unusual, sometimes singular, design and engineering, and were overseen directly by the division engineer Charles Suter. Both Suter and Taylor worked steadfastly as engineering designers of coastal fortifications, collaborating on some of the first work undertaken at Fort Worden in Washington. Suter's contribution, in particular, needs the attention of historians. Another motivation in the preservation of coast defenses is the uncovering of details important in engineering history—so that from our archival discoveries we may interpret the critical physical features of individual batteries. Where such features are

unique, we learn to pause and appreciate, to link specific achievements and failures with the engineering of coast defenses that came before, and followed afterwards—linking San Francisco to the nation's seaboards in a historic continuum.

### *Properties Addressed in the Maintenance Manual*

In undertaking the preparation of a coast defense maintenance manual, the National Park Service limited itself to those batteries, and a representation of their related ancillary structures, currently within the boundaries of the Golden Gate National Recreation Area. Although such a demarcation is necessarily somewhat artificial with respect to Army history, it allows the clearest and most efficient management of the park's historic resources. In his thorough and exemplary 1979 study, *Seacoast Fortifications San Francisco Harbor*, Erwin N. Thompson acknowledges this dilemma, and includes discussion of the related batteries and ancillary structures on Angel, Alcatraz, and Yerba Buena Islands. The Fort McDowell Endicott batteries of 1899 to 1901 on Angel Island—Drew, Ledyard, and Wallace—are especially noteworthy from the vantage of engineering history, and although they presently are managed under the ownership of the State of California, may merit cross-referencing during later research efforts for the National Park Service properties.

In addition, the National Park Service is in the process of preparing a National Historic Landmark nomination for the seacoast fortifications of San Francisco Bay, under a multiple property designation. The landmark nomination, as a historically comprehensive interpretation of the coast defenses surrounding San Francisco Bay, extends outside of the management boundaries of the Golden Gate National Recreation Area. The proposed National Historic Landmark includes numerous properties not discussed in the maintenance manual: these are six batteries, a mine casemate, and a Nike site on Angel Island; selected buildings, magazines, tunnels, and walls on Alcatraz Island; a mine storehouse on Yerba Buena Island; and thirty-three ancillary structures (fire control stations, a mine casemate, searchlights, generator buildings, antiaircraft emplacements, and World War II SCR 296-type radars) at the six additional military reservations of Devil's Slide, Little Devil's Slide, Frank Valley, Hill 640, Pillar Point, and Wildcat Ridge, to the north and south of the Golden Gate National Recreation Area.

Within the jurisdiction of the Golden Gate National Recreation Area, and referenced in this manual, are fifty total batteries: six batteries of the Civil War and post-Civil War eras (Forts Baker, Mason, and Winfield Scott); thirty-one batteries of the early-modern Endicott, Taft, and World War I eras (Forts Baker, Barry, Mason, Miley, and Winfield Scott); and, thirteen batteries of World War II (Forts Baker, Barry, Cronkhite, Funston, Miley, and Point, with one installation at Milagra Ridge).<sup>5</sup> For the purposes of representative field review, the maintenance manual team looked at twenty of these batteries, and sampled an additional nine ancillary structures. The full list of batteries, with visited batteries and ancillaries marked by asterisks, is given in Appendix A, with many of the Army's Form 7s—simplified elevations, sections, and plans—reprinted in Appendix B. Batteries selected for field review were agreed upon by the National Park Service and the maintenance manual team, and offer a cross section of age and type, as well as presenting the range of maintenance issues found in the Golden Gate National Recreation Area.

### *A Preservation Charette*

At the outset of the field inspections, the maintenance manual team, under the direction of KEA Environmental, gathered together on December 12, 1998 for an informal charette of interested preservation professionals. Our goal was to discuss firsthand the types of challenges raised in the care and interpretation of coast defense fortifications. We can preserve such resources only if we can manage them well over time. Attending the all-day event were members of the National Park Service, the maintenance manual team, and representatives of the preservation community. Four historical architects and an architectural historian were in attendance, including Ric Borjes and Hank Florence from the National Park Service, Golden Gate National Recreation Area and Seattle offices, respectively; Steade

Craig and Joe Freeman, AIA restoration architects from Sacramento, California, and, Austin, Texas; and Dr. Karen Weitze, from KEA Environmental and maintenance manual project manager. Mary Hardy, from the Berkeley firm of Siegel & Strain Architects, represented the specialty of historic materials conservation, while San Francisco landscape architect Denise Bradley represented that discipline. Brian Grogan, of Grogan Photography & Preservation Associates, Yosemite, California, brought the fine arts perspective. Mr. Grogan is the large-format photographer for the National Historic Landmark nomination in progress for the San Francisco coast defense fortifications. Three military historians, with many years experience, brought superlative expertise to the gathering: John Martini, curator of military history for the Golden Gate National Recreation Area; David Hansen, a member of the maintenance manual team and author of earlier studies and published articles on the coast defenses of Washington; and, Milton "Bud" Halsey, Colonel USA, retired, manager of the restored Nike missile site SF-88L, Fort Barry. Mr. Halsey's first-hand experience in the preservation and interpretation of the Nike site complemented all discussions of the battery locations throughout the day. Three historians further augmented the expertise of the military group: National Park historians Steve Haller and Gordon Chappell, and, KEA historian Christy Dolan. Filling out the charette were the Marin Buildings and Utilities Supervisor from Fort Baker, Tima Alexandro, and, a National Park Service volunteer for Battery Chamberlin and site representative for the Coast Defense Study Group, Eric Heinz.

The morning opened with general introductions and a presentation of the larger goals of the National Park Service in its work with coast defense fortification restoration and interpretation, both in the San Francisco Bay Area and in Puget Sound. Ric Borjes stated the desire for a practical tool available to his personnel in the Golden Gate National Recreation Area, one that could aid in prioritizing needed maintenance and stabilization work at the batteries and their associated ancillary structures, and, could serve to effectively organize annual plans and budgets, using a collaborative team of individuals ranging from volunteers and students, to contracted preservation specialists. Hank Florence spoke about the upcoming projects planned for Washington, with work continuing at Fort Worden, and with a management manual similar to that undertaken by the National Park Service in San Francisco planned for the summer of 1999. Efforts in the Northwest are geared toward an international conference on coast defense fortifications tentatively set for 2001. Both Mr. Borjes and Mr. Florence are seeking a united Pacific Coast perspective on coast defenses, and are hopeful that coordination of their projects can serve the National Park Service in other districts, as well as enhancing our understanding of the historic ties between the fortifications of San Francisco, the Columbia River, and Puget Sound.

Before leaving on selected site tours of the batteries, military historians Martini and Hansen opened discussions for the group through two lively and thorough slide presentations, focused on the coast defenses in San Francisco and Puget Sound. Mr. Martini poignantly reminded the group of sixteen professionals that park preservation and interpretation always begins with the public. Growing up in the Bay Area, Mr. Martini happened upon the batteries as a boy, exploring them repeatedly, and never forgetting his first experiences. Similarly, years of military service and participation in organizations like the Coast Defense Study Group bring layers of experience to later efforts focused on the interpretation of defense sites. Charette members Bud Halsey and Eric Heinz both added this kind of irreplaceable perspective, with factual knowledge of the working details within functioning military installations of the recent past, complemented by understandings focused on the usefulness of items like military procedures and technical manuals, themselves now historic resources. Mr. Hansen, not only a military historian, but an architectural-engineering historian as well, gave the group a professionally reflective introduction to the batteries, making correlations between military needs and engineering innovations documented in the infrastructure. He pointed out that we must remember that buildings are designed for the use of specific groups of people, operating under the quite definitive constraints of their own times and places. We must acknowledge the client, here the U.S. Army.

The Army required that its coast defenses achieve some very basic design parameters. The fortifications needed to keep men and equipment—from the ammunition to the loading mechanisms—warm, dry, and safe from premature explosion, while simultaneously guaranteeing that the batteries and their ancillaries

were strong enough to withstand attack. Planning for the coast defense fortifications went slowly, moving through a bureaucracy of cross-checks and approvals. The design and engineering process inside the Army, therefore, was necessarily one overly dependent on the drafting boards: early construction tended to be overdesigned, making the batteries physically more extensive than they might have been if practical observations could have been forthrightly incorporated into the process. Predictably experimentation to strengthen the batteries occurred from the first, with massive poured concrete receiving rock, iron, and steel reinforcing in a variety of treatments that ranged from dismal failures to transitional, qualified successes. There was also the matter of adaptation to evolving weaponry, both from the vantage of defense against advancing naval guns, and from the vantage of effective land retaliation.

Mr. Hansen noted, like civil engineers of the early twentieth century, that batteries were much like ships—they really were never finished, demanding continuous maintenance and improvements. The earthen embankments immediate to the batteries protected the fortifications, deflecting projectiles away from the installations. As cannon adapted to the disappearing carriage, Army engineers developed mechanisms to load the guns behind walls and then raise them to fire. The resulting batteries had two stories, the upper area open behind walls, and the lower fully enclosed as rooms. Such a design also required hoisting heavy and dangerous ammunition from a low point upwards, making clear just how the physical form of the battery would always be subservient to ordnance. In other cases, barbette carriages did not require the crested upper wall design, and thus also affected experimentation with placement of the ammunition magazines on a more nearly equal level to the guns. Over time batteries tended to become larger, with individual emplacements separated within single installations and with batteries increasingly spread out across the coastal terrain. Less dramatic, engineering efforts also attacked problems of water percolation through the porous concrete; varieties of deliberate plantings immediate to the installations; and, methods of blending the batteries into their hosting land forms. And in all cases, Army procedure dictated how the post would be commanded. Such procedure also changed over the decades and is reflected today in the nearly archeological remnants of items like the turn of the century blackboard racks in the data booth at Battery Stotsenburg-McKinnon (Plate 7).

### Graffiti

The charette then reconvened at the post-Civil War era Cavallo Battery, north of the Golden Gate Bridge. A massive earth-and-brick battery, Cavallo has sustained major, recent problems with vandalism by graffiti artists, even with regular patrolling by park personnel and within locked fencing. In many places on the battery's brickwork there are layers of graffiti, and in some areas, the art work has been carved into the face of the masonry. A single treatment to remove paint is neither possible, nor practical, as the different paints each are defined by a distinct chemical make-up. Architect Joe Freeman suggested that the most straightforward solution might be to temporarily mask the graffiti with a breathing, benign paint similar in color to the bricks. Such a tack would discourage the graffiti artists; could be repeated; and, at a later date, as conservation techniques become more sophisticated, the interim masking and the hidden graffiti could be removed. Conservationist Mary Hardy carried these thoughts further with the idea of letting the graffiti fade through natural weathering, while architect Steade Craigo reiterated the fragile nature of the masonry itself. In the future, with the graffiti cleaned from the surfaces of the battery, a microcrystalline wax could be used to coat the brickwork, allowing the material a viable protection from wandering artists.



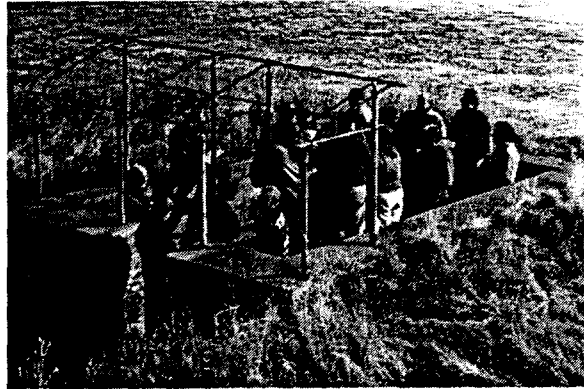
**Plate 7. Battery Stotsenburg-McKinnon, Fort Winfield Scott, constructed 1897-1898. Blackboard racks at data booth.**

### Vegetation and Habitat

The vegetation issues, while not as technically complicated, raise their own sophisticated questions. Gathered at Cavallo Battery overlooking the adjacent Battery Yates, the charette group discussed the challenges of discovering the original plantings at the batteries; the role of native vegetation; differing landscape and camouflage plans in sequential eras; and the maturation of unintended vegetation on site (Plate 8).

At Batteries Cavallo and Yates, grass species, coyote bush, sage, and lupine dominate the current vegetation. The lupine, a low-growing plant, is now home to a protected species of butterfly. Here issues of contemporary habitat will need to be weighed against historical accuracy, and in fact a landscape plan for the batteries might suggest that the lupine stay as a reasonable historic planting. Characteristics such as low plant height, vegetation density, overall coloration, and untended vigorous growth are parallel with original plans for the site, and can perhaps be employed as landscape maintenance plan parameters to achieve the dynamics of sustaining needed habitat. Indeed, at other battery sites with the Golden Gate National Recreation Area, the Army deliberately planted lupine as the selected ground cover. At some installations, such as the grouping Sherwood, Slaughter, and Blaney observed in the late morning and Stotsenburg-McKinnon visited in the afternoon, cypress and eucalyptus trees—typically introduced to augment Presidio landscaping or to hide the installations—are damaging the concrete installations through their root growth, cracking both walls and foundations. And there, a sensitive regional plant species, San Francisco lessingia (*lessingia germanorum*), is currently growing on the bermed earthworks.

Plate 8. Preservation charette group at the CRF station for Battery Yates, located at Cavallo Battery, Fort Baker, 1903. Discussion of vegetation and habitat issues.



#### Concrete Design and Site Settlement

At Battery Marcus Miller, inspected next, charette participants discussed the spalling concrete, damage from the region's earthquakes, rusted and fallen cables, removal of valued metals (here bronze hinges) by vandals, interior flooding, clay layered over floorings, remnants of historic paint schemes and tinted surfaces, and scored flagging around the gun pits. Mr. Hansen and Mr. Craig pointed out relatively subtle design details, such as chamfered corners and the use of an incised drip line. The range of aesthetic and structural details supported the need for a careful inventory site by site, with eyes toward identifying the character-defining features common across the San Francisco batteries and those occurring only rarely, or perhaps, unique. Review of available archival records will also help to ascertain how much cut and fill has taken place. Soil stability might be enhanced—and settlement minimized—through soil grouting, injecting concrete into the soil surrounding certain installations in order to tie battery foundations to the host land forms.

#### Observations

At the close of the charette, the group reconvened at the Presidio to draw together the thoughts of the participants. Given what we had seen firsthand, and with the specialized professional backgrounds brought to this type of historic resource, what did the group feel was generally applicable? What's ahead for the Golden Gate National Recreation Area in the preservation of its coast defense fortifications? The group identified the themes of inventory; management; interpretation; maintenance; public involvement; realistic assessments; variable funding; and appropriate professional advice.

To conclude the charette, and to open the chapters that follow, the group suggested that we most effectively preserve such specialized resources as coast defense fortifications when we understand them as fully as possible. To begin an inventory and track integrity of the historic resource, a checklist is suggested, given in Appendix C. The checklist is intended for use after becoming familiar with the broad character-defining features of the coast defenses within the Golden Gate National Recreation Area, presented in chapter 3. For maintenance, we begin by looking at causes of deterioration. Here the checklist achieves a second life as a tool for recording recurring problems, and for making annual workplans. Both inventory and maintenance site visits can additionally benefit from selected use of the simple plans, elevations, and sections provided through the reprinted Form 7s historically compiled by the Army (Appendix B). Even before we begin our efforts, though, we can secure the sites, and restore minimal insurances of public safety. Simple assessments for replacement of handrails, clearance of inappropriate vegetation, and removal of debris can be a start. Straightforward actions, such as repainting wood and metal detailing where it is intact and in reasonably good condition, can slow down site degradation. And everyone agreed the an understanding of the cultural landscape, looking both seawards and toward the coast defenses, is essential for the resource we have here, one that is so completely integrated with the land.

**Table 1**  
**Coast Defense Fortifications**  
**Preservation Needs and Goals at the Golden Gate National Recreation Area**

<b>Need</b>	<b>Goal</b>
<i>Identification of Historic Resources</i>	<i>Park Inventory</i>
<ul style="list-style-type: none"> <li>*Establishing character-defining features for the batteries</li> <li>*Listing and mapping ancillary structures</li> <li>*Determining the larger cultural landscape</li> </ul>	<ul style="list-style-type: none"> <li>*Use of National Park Service personnel</li> <li>*Volunteer teams</li> <li>*Specialized contributions in architectural/landscape history</li> </ul>
<i>Management of Batteries and Ancillaries</i>	<i>Effective Long-Range Planning</i>
<ul style="list-style-type: none"> <li>*Determination of sites for interpretation</li> <li>*Decisions across the resources for stabilization, preservation, rehabilitation, or restoration</li> <li>*Stewardship plans</li> </ul>	<ul style="list-style-type: none"> <li>*Interdisciplinary meetings within National Park Service</li> <li>*Site reconnaissance</li> <li>*Management decisions and allocation of National Park Service resources</li> </ul>
<i>Appropriate Interpretation of Coast Defenses</i>	<i>Enhancement of Role in the Golden Gate National Recreation Area</i>
<ul style="list-style-type: none"> <li>*Continued archival research</li> <li>*Communication with other managed coast defense fortifications / parks</li> <li>*Interim solutions for site security and stabilization</li> </ul>	<ul style="list-style-type: none"> <li>*Attractive resource for visitors</li> <li>*Tourist destination</li> <li>*Integrated resource across National Park Service regionally and nationally</li> </ul>
<i>Maintenance</i>	<i>Stabilization of All Resources</i>
<ul style="list-style-type: none"> <li>*Monitoring and testing at selected sites</li> <li>*Selected treatments applicable at multiple sites</li> <li>*Vegetation management</li> <li>*Graffiti removal / treatment prioritized</li> <li>*Address issues of site drainage and settlement</li> </ul>	<ul style="list-style-type: none"> <li>*Easily available, effective products</li> <li>*Practical treatments</li> <li>*Economies of scale through chosen methods</li> <li>*Involvement of varied personnel, including volunteers</li> </ul>
<i>Realistic Assessments</i>	<i>Development of the Golden Gate National Recreation Area</i>
<ul style="list-style-type: none"> <li>*Maintenance manual specific to Golden Gate National Recreation Area</li> <li>*Variable funding projections</li> <li>*Variable personnel assigned to tasks</li> <li>*Achievement of public safety</li> </ul>	<ul style="list-style-type: none"> <li>*Maintenance manual broadly useful across National Park Service</li> <li>*Optimal use of limited monies and people</li> <li>*Sustainment of desirable parklands</li> </ul>
<i>Leveraging Professional Advice</i>	<i>Well Maintained Resources. Accurately Interpreted</i>
<ul style="list-style-type: none"> <li>*Targeting specialty testing—chemical, physical, and acoustical in type</li> <li>*Developing tiered approaches to problem solving and analysis</li> <li>*Consideration of large-format photography for selected recordation and for wider audience park publications and brochures</li> </ul>	<ul style="list-style-type: none"> <li>*Protection of coast defenses</li> <li>*Balanced allocation of funding</li> <li>*Public advocacy for its historic resources, with sustained involvement</li> </ul>

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<sup>1</sup> As quoted in *Statement for Management, Golden Gate National Recreation Area* (San Francisco: National Park Service, 1992), 7.

<sup>2</sup> *The National Parks: Index 1997-1999* (Washington, D.C.: U.S. Department of the Interior, 1999), 2.

<sup>3</sup> *Golden Gate National Recreation Area/Point Reyes National Seashore General Management Plan / Environmental Impact Statement* (San Francisco: National Park Service, 1980), 20.

<sup>4</sup> *National Historic Preservation Act of 1966, as amended* (Washington, D.C.: The Advisory Council on Historic Preservation, 1993), 27.

<sup>5</sup> There are also were also six Nike missile launch sites within the present boundaries of Golden Gate, including one on Angel Island State Park. Although many of the treatments recommended in this manual may be successfully used to preserve certain historic fabric at the Nike sites, these sites are different enough from the gun batteries to be dealt with separately. They are referenced in, but are not intended to be a part of, this study.